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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,468	01/28/2004	Frederick W. Giacobbe	Serie 6481	8586

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EXAMINER

HERRING, LISA L

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,468

Applicant(s)

GIACOBBE ET AL.

Examiner

Lisa Herring

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 1-27 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 48 is/are allowed.
- 6) ☒ Claim(s) 28-31 and 47 is/are rejected.
- 7) ☒ Claim(s) 32-46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/2004 & 1/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-27, drawn to an apparatus, classified in class 65, subclass 510.
 - II. Claims 28-48, drawn to a method, classified in class 65, subclass 477.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another an materially different process, such as cooling of a small items, for example small rods or glass beads.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Linda Russell on August 3, 2005 a provisional election was made with traverse to prosecute the invention of Group II, claims 28-48. Affirmation of this election must be made by applicant in replying to this

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Office action. Claims 1-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 28 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darcangelo et al. (4,514,205) in view of Crevasse et al. (6,206,976).

Darcangelo (Fig. 2) discloses a method of cooling a fiber in a coolant system, the coolant system including a heat exchanger (32) with a fiber receiving conduit including a fiber inlet, a fiber outlet, and an internal passage disposed between the fiber inlet and fiber outlet, the internal passage including at least one adjustable seal, such as a iris diaphragm (50 or 48), the method comprising:

passing an optical fiber (16) through the internal passage between the fiber inlet and the fiber outlet; and

manipulating the at least one adjustable seal to selectively adjust a dimension of the seal orifice by disclosing a seal orifice, such as an iris diaphragm (50 or 48), can be adjusted to provide a relatively large opening until the drawing process achieves steady state conditions and can be adjusted to provide relatively narrow openings to restrict the flow of helium from the tube (Col. 3 lines 1-8).

Darcangelo fails to disclose the manipulating the at least one adjustable seal via a controller. However, Darcangelo discloses the claimed invention except for manipulating the at least one adjustable seal via a controller, which is an automatic means. It is well known in the art to control an iris diaphragm, which is an adjustable seal, via a controller, as evidenced by Crevasse. Crevasse discloses a flow controller includes a drive device 47" for controlling the iris diaphragms 81 responsive to control signals (Col. 8 lines 5-11). Crevasse and Darcangelo are analogous art because they ar from a similar problem solving area, such as controlling flow of gases using an iris diaphragm. Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to automate the manipulation of the adjustable seal via a controller, since it has been taught by Crevasse and since it has held that broadly providing a mechanical or automatic means to replace a manual activity which has accomplished the same result involves only routine skill in the art. In re Venner, 120 USPQ 192.

3. Claim 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darcangelo et al. (4,514,205) in view of Crevasse et al. (6,206,976) as applied to claim 28 above, and further in view of Lysson et al. (DE4215475).

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4. Darcangelo et al. discloses an outer conduit disposed above the fiber receiving conduit defining a chamber (58), a dry inert gas flowing into the chamber, and flowing a fluid medium through the chamber between an inlet and an outlet port of the outer conduit. Darcangelo fails to disclose the outer conduit disposed around the fiber receiving conduit defining a chamber between the outer surface of the fiber receiving conduit and the inner surface of the outer conduit. However, Lysson discloses a similar heat exchanger apparatus, which also utilizes a tube, iris diagrams, and an outer conduit defining a chamber. The outer conduit disclosed by Lysson is disposed around the fiber receiving conduit defining a chamber between the outer surface of the fiber receiving conduit and the inner surface of the outer conduit, and flowing a fluid medium through the chamber between an inlet and an outlet port of the outer conduit. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the alternative design of the iris diaphragm and outer conduit in the apparatus of Darcangelo, since it has been suggested by Lysson this alternative design, which meets the limitations of Claim 29, successfully provides cooling and sealing during fiber cooling.

5. Regarding claim 30, Darcangelo discloses nitrogen, which meets the limitation of claim 30 for a fluid medium comprising at least one of a substantially pure gas.

6. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Darcangelo et al. (4,514,205) in view of Crevasse et al. (6,206,976) as applied to claim 28 above, and further in view of Lysson et al. (DE4215475) as applied to claims 29 and 30 above, and further in view of Guenot et al. (6,576,164). Darcangelo fails to disclose

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the fiber is passed through the internal passage of a plurality of heat exchangers, and the temperature of fluid medium flowing through the chamber of at least one heat exchanger is different than the temperature of fluid medium flowing through the chamber of at least one other heat exchanger. However, Guenot (Fig. 3) discloses an alternative heat exchanger system for cooling an optical fiber, wherein the fiber is passed through the internal passage of a plurality of heat exchangers. Guenot further discloses in the example the temperature of the heat exchange area 102 is maintained at a temperature of 15°C and the heat exchange area 105 is maintained to a temperature of 1050°C (See Example). Therefore it can be deduced the temperature of the fluid medium flowing through each chamber is different. Guenot discloses this type of method, which includes a quench cooling and slow cooling decreases Rayleigh back scattering significantly, and therefore reduces the attenuation of the fiber fabricated. Accordingly, it would have been obvious to one skilled in the art at the time the invention was made to further include a plurality of heat exchangers, and the temperature of the fluid mediums flowing through each of the chambers of the heat exchangers at a different temperature for the advantage of reducing the Rayleigh back scattering, as taught by Guenot.

Allowable Subject Matter

7. Claims 32-46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claim 48 is allowed.

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9. The following is a statement of reasons for the indication of allowable subject matter:

10. Regarding claims 32-46, the references of record fail to disclose or suggest the method with a coolant system having the combination, wherein the internal passage includes first and second adjustable seals that partition the internal passage into a first chamber, a second chamber, and a primary cooling chamber, the first chamber includes an inlet port, the second chamber is disposed between the first chamber and the primary cooling chamber and includes an inlet port, and the controller is in communication with the first and second adjustable seals, the method further comprising:

flowing a first fluid medium into the first chamber via the inlet port of the first chamber;

flowing a second fluid medium into the first chamber via the inlet port of the second chamber;

wherein the first and second adjustable seals are independently manipulated, via the controller, to selectively adjust a dimension of the orifice of each adjustable seal.

Regarding claim 48, the references fail to disclose the combination of two adjacent chambers, a gas analyzer in fluid communication with the gas analyzer and the at least one adjustable seal, the method comprising:

extracting a fluid sample from the at least one chamber via the gas analyzer;

measuring a concentration of at least one gas in the extracted fluid sample via the gas analyzer; and

effecting, via the controller, an adjustment of at least one of a dimension of a variable orifice of the at least one adjustable seal and the flow rate of fluid medium within the internal passage when the measured concentration of the at least one gas in the extracted fluid sample exceeds a threshold value.

Conclusion


11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Lu et al. (6,789,400) (Figs. 1, 3, and 4) discloses a cap assembly divided by partitions to form multiple chambers. The cap assembly is capable of flowing a cooling gas in one chamber and a sealing gas in another chamber (Col. 7 lines 10-21). Also, the cap assembly ports may be used for withdrawing gases (Col. 6 lines 60-63).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Herring whose telephone number is 571-272-1094. The examiner can normally be reached on Mon-Fri. 7:30 am-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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